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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,947	03/15/2004	Hassan Mostafavi		2915

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BINGHAM, MCCUTCHEN LLP  
THREE EMBARCADERO CENTER  
18 FLOOR  
SAN FRANCISCO, CA 94111-4067

EXAMINER

KIKNADZE, IRAKLI

ART UNIT PAPER NUMBER

2882

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H-3

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/801,947	MOSTAFAVI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Irakli Kiknadze	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-27, 30-43 and 46-54 is/are rejected.
- 7) ☒ Claim(s) 12, 13, 28, 29, 44 and 45 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/15/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 51 and 54 are objected to because of the following informalities:

With respect to claims 51 and 54, in line 1, the recitation " wherein the generating comprises constructing a volumetric image" is awkward. It should read -- wherein the generating the CT image comprises constructing a volumetric image--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 1-32 and 49-54 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: irradiating a portion of the patient with x-rays from an x-ray source disposed in the rotating gantry and detecting ones of the x-rays transmitted through the portion of the patient body to obtain image data.

5. Claims 33-48 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: an x-ray source disposed in the rotating gantry irradiating a portion of the patient with x-rays and an x-ray detector detecting ones of the x-rays transmitted through the portion of the patient body to obtain image data.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-11, 14-27, 30-43 and 46-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Takagi et al. (US Patent 6,269,140 B1).

With respect to claims 1, 17 and 33, Takagi teaches a method, computer readable medium associated with a data processing section (20) and having a set of stored instruction, the execution of which causes a method to be performed (column 5, lines 45-62) and system for collecting computed tomography (CT) image data, comprising: irradiating a portion of the patient with x-rays from an x-ray source disposed in a rotating gantry and detecting ones of the x-rays transmitted through the portion of the patient body to obtain image

Art Unit: 2882

data; rotating the gantry to collect at set of CT image data of a lung of a patient, wherein each set of the CT image data corresponds to a phase of a respiratory cycle (column 7, lines 4-20).

With respect to claims 2-5, 18-21 and 34-37, Takagi teaches repeating the step of rotating to start scanning of the portion of body of the patient at substantially same phase within the different respiratory cycles (column 7, lines 45-53).

With respect to claims 6-11, 22-27 and 38-43, Takagi teaches controlling a rotation speed of the gantry in accordance with the output signal of breathing phase of the patient (column 7, lines 5-20 and 42-50).

With respect to claims 14-16, 30-32 and 46-48, Takagi teaches generating motion data associated with a breathing of the patient. Further method comprises synchronizing the collected CT image data and the motion data and sorting the collected CT image data such that CT image data that correspond to a same phase of a respiratory cycle are grouped for CT image reconstruction (column 7, lines 7-20; claims 9-11).

With respect to claim 49 and 52, Takagi teaches a method for generating a computed tomography (CT) image and computer readable medium associated with a data processing section (20) and having a set of stored instruction, the execution of which causes a method to be performed (column 5, lines 45-62), comprising: irradiating a portion of the patient with x-rays from an x-ray source disposed in the rotating gantry and detecting ones of the x-rays transmitted through the portion of the patient body to obtain image data; collecting data

Art Unit: 2882

samples representative of a physiological movement of a patient due to breathing; rotating a gantry to acquire image data of at least a part of the patient; gathering image data acquired at a same phase of a breathing cycle; and generating a CT image using the gathered image data (column 7, lines 4-21 and 42-53 and claims 9-11).

With respect to claims 50 and 53, Takagi teaches controlling a speed of the gantry based on the data samples (column 7, lines 42-54).

With respect to claims 51 and 54, Takagi teaches that the generating the CT images comprises constructing a volumetric image (column 5, line 63 – column 6, line 9).

### ***Allowable Subject Matter***

8. Claims 12, 13, 28, 29, 44 and 45 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claim 12, prior art fails to teach or make obvious a method, for collecting computed tomography (CT) image data, comprising: determining a difference between a gantry phase and a determined breathing phase, wherein adjusting a speed of a gantry comprises changing the speed of the gantry

Art Unit: 2882

rotation in response to the difference as claimed in combination with all elements of the base claim 1 and intervening claims 8 and 10.

With respect to claim 13, prior art fails to teach or make obvious a method, for collecting computed tomography (CT) image data, comprising: estimating a next breathing phase of the patient based on the determined phase of the patient; and wherein the adjusting comprises changing the speed of the gantry rotation based on the estimated next breathing phase as claimed in combination with all elements of the base claim 1 and intervening claims 8 and 10.

With respect to claim 28, prior art fails to teach or make obvious a computer readable medium having a set of stored instruction, the execution of which causes a method to be performed, comprising: determining a difference between a gantry phase and the determined breathing phase, wherein adjusting a speed of a gantry comprises changing the speed of the gantry rotation in response to the difference as claimed in combination with all elements of the base claim 17 and intervening claims 24 and 26.

With respect to claim 29, prior art fails to teach or make obvious a computer readable medium having a set of stored instruction, the execution of which causes a method to be performed, comprising: estimating a next breathing phase of the patient based on the determined phase of the patient; and wherein the adjusting comprises changing the speed of the gantry rotation based on the estimated next breathing phase as claimed in combination with all elements of the base claim 17 and intervening claims 24 and 26.

With respect to claim 44, prior art fails to teach or make obvious a system for collecting computed tomography (CT) image data, comprising: determining a difference between a gantry phase and the determined breathing phase, wherein adjusting a speed of a gantry comprises changing the speed of the gantry rotation in response to the difference as claimed in combination with all elements of the base claim 33 and intervening claims 40 and 42.

With respect to claim 45, prior art fails to teach or make obvious a system for collecting computed tomography (CT) image data, comprising: estimating a next breathing phase of the patient based on the determined phase of the patient; and wherein the adjusting comprises changing the speed of the gantry rotation based on the estimated next breathing phase as claimed in combination with all elements of the base claim 33 and intervening claims 40 and 42.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is 571-272-2493. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax

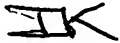


Art Unit: 2882

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irakli Kiknadze  
September 13, 2005



EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER